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# Key variables of organisation design in servitization

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## Abstract

Manufacturing companies offering additional service with their products need to change their organisation design to accommodate for the service business. Using the star model, this paper investigates organisation design in terms of strategy, structure, processes, rewards and people as a response to external environment to ensure performance. We present a case in the European renewable energy sector. The findings show three key variables: (i) processes need to enable information flow between business departments; (ii) servitization strategy needs to be translated into service-centred activities, and (iii) the parts of organisation design need to be aligned to prevent inconsistencies in service provision.

**Keywords:** servitization, case study, organisation design

## Introduction

Manufacturing companies are faced with increasing pressures from their market environments such as the need to reduce product prices, reduce environmental impact and increase customer focus. As a result, these companies increasingly provide additional services with their products to become providers of solutions or Product-Service Systems (PSS) (Oliva and Kallenberg, 2003). Closer relations with the customers are kept to successfully target their needs and create value (Davies et al., 2007). Further, the product life cycle becomes increasingly important as the cost and efficiency of operating the product becomes the focus of the transaction. As such, various pressures in the external environment of manufacturing companies force them

to adapt their business processes. The literature on PSS and servitization typically focuses on the dyadic relationship between provider and customer to jointly create value (Kreye et al., forthcoming). As different levels of integrating the customer into the service production processes exist, the importance of linking the provider's to the customer's operations has been highlighted (Cannon and Perreault, 1999). However, little attention has been given to the organisation design of solution providers to enable these operational linkages. The literature lacks empirical evidence about successful and unsuccessful organisation design within servitized manufacturing companies. Current insights describe how to establish close customer relationships and integrate operations in the dyad; however, little attention has been paid to the pre-requisites for developing this relationship, i.e. organisation design.

This paper aims at closing this gap by investigating the following research question (RQ): What are the characteristics of organisation design for manufacturing companies engaging in a servitization strategy? Using the insights from contingency theory, we utilise the star model (Galbraith, 2002) to characterise organisation design. The star model links a company's strategy to the capabilities it needs to achieve its goals (Kates and Galbraith, 2007). Organisational capabilities are achieved by aligning structure, processes, rewards and people with each other. We investigate the RQ for a single case study within the European renewable energy sector. Studying one solution provider in one specific business context offered the advantage of an in-depth discussion of the influences of the external environment on organisation design and performance. Environmental influences on the organisation can be assessed within the economic context to discuss their influence on performance. Furthermore, the European renewable energy sector is characterised by sector regulations that creates a well-defined business environment with strong economic pressures for companies to be open for innovation. This allowed us to study the impact of external conditions on internal reactions. Given the novelty of this research, this well-defined business environment formed the ideal conditions for the collection of our case study. The organisation design for a service provider manufacturing and maintaining equipment for their customers is discussed in terms of the star model.

## **Theoretical background**

### *Provision of engineering services*

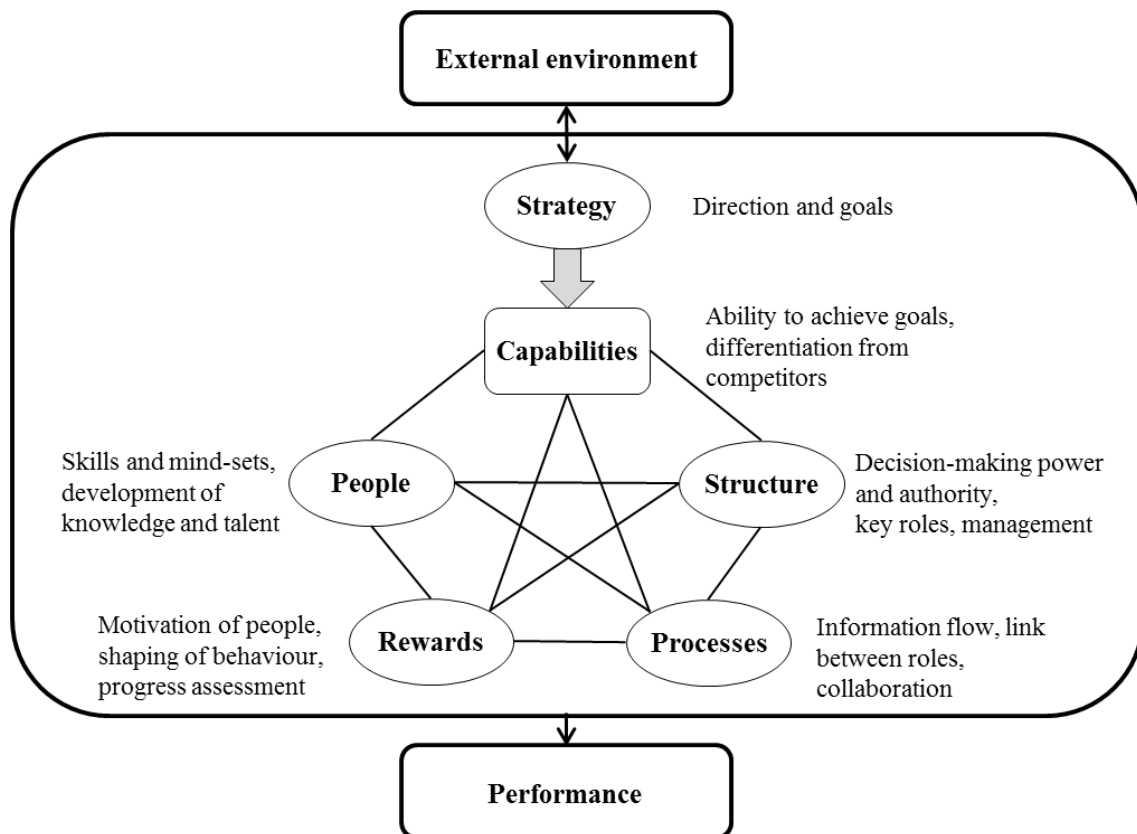
Servitization presents challenges for manufacturing companies as it creates high levels of uncertainty (Kreye et al., 2013). Services are activities or processes where the service provider, customer and the service issue are combined in a triangular relationship (Gadrey, 2000). For engineering services, many offerings evolve around the product and include for example maintenance or after-sales services. Engaging in a servitization strategy offers successful business opportunities as customers are bound closer to the provider through customized and knowledge intensive solutions and can increase product and service sales respectively (Gebauer et al., 2005). Thus, manufacturers face promising business opportunities in engineering services if they approach it with successful integration of customer needs and capabilities.

Manufacturing companies can offer engineering services with different levels of integrating the customer into their operations (Gebauer and Kowalkowski, 2012). Providing after-sales services such as spare parts requires fewer operational linkages between provider and customer than offering integrated solutions where the equipment needs to be monitored and maintained continuously (Smith et al., 2012). This shows that the business environments for engineering services are dynamic and consistently

changing. Thus, manufacturers need to constantly adapt to market signals and new customer requirements (Buvik and Grønhaug, 2000). Furthermore, manufacturers can develop their engineering service business gradually meaning that they can build on experience and benefit from learning. Structures and processes do not have to be replaced abruptly but can grow organically to ensure sustainability.

### *Organisation design*

Organisation design is a pre-requisite for successfully following a business strategy and build organisational capabilities (Lytle et al., 1998). Thus, a servitization strategy, i.e. the strategy of a manufacturer to provide engineering services {Baines, 2013 #2527}, needs to be represented in their organisation design. Opportunities and pressures from the external business environment need to be mirrored in the internal processes including the overall organisation strategy as well as its structure, processes, rewards and people (Homburg et al., 2000). The star model developed by Galbraith (1973) and adapted by Kates and Galbraith (2007) represents the need for aligning these factors to ensure successful responses to the external business environment. Figure 1 depicts the star model and shows how structure, processes, rewards and people need to be aligned to build capabilities and achieve strategic goals.



*Figure 1: Star Model: Aligning internal organisation factors with external environment (adapted from Kates and Galbraith (2007) and Neu and Brown (2005))*

Strategy defines the overall direction and goals of the organisation. In the context of engineering services, an organisation creates a separate service unit (Oliva and Kallenberg, 2003) and organises this around customer groups to develop solutions that are specific to customer needs (Homburg et al., 2000). Capabilities are useful means to implement the business strategy. They enable the company to achieve its goals by

utilising its resources and to purposefully create, extend or modify its resource base (Helfat and Peteraf, 2003). Manufacturing companies following a servitization strategy need to develop new capabilities to successfully coordinate and redeploy internal and external competencies to allow for the new conditions (Teece et al., 1997). These new capabilities can be obtained by a continuous alignment between structure, processes, rewards and people within the organisation (Kates and Galbraith, 2007).

The organisation **structure** defines where decision-making power is located within the organisation (Galbraith, 1973). Through continuous environmental change, the organisation should adopt a horizontal organisation structure to allow for quick reactions to changes and pressures from the environment (Daft et al., 2010). A horizontal structure is characterised by self-directed teams that are organised in work units to include different functions (Hurst, 1995). As such, servitized manufacturers have to implement a hybrid model of front and back office functions that enables responsiveness to customer needs (Galbraith, 2002). **Processes** define the information flow within the organisation and describe ‘the way things are done in the firm’ (Teece et al., 1997, p.518). In service operations, processes are more labour intensive and capital independent than traditional production (Lewis and Brown, 2012). The high level of customer interaction and input in the front office means that service processes can vary significantly between customers depending on the level of input (Sampson, 2000) and that throughput time is slow. In contrast, back offices can be “industrialised” to ensure stable and controllable processes and monitoring of the costs (Reinartz and Ulaga, 2008).

**Rewards** define the systems available for motivating the staff (Galbraith, 1973). Success criteria for service providers are related to long-term relationships with customers. This “farmers” mentality (Reinartz and Ulaga, 2008) is hard to measure and which creates difficulties for useful reward systems. An organisation culture of quality needs to be built where staff is motivated for service mindedness and customer-oriented behaviour to deliver service quality (Benoy, 1996). This will create the basis for intrinsic motivation of front-office service staff as well as team spirit, supervision activities such as feedback provision, financial rewards, career paths within the organisation (Benoy, 1996). **People** within the organisation need to have the appropriate skills and knowledge to provide the customer services and/or solutions effectively and efficiently (Rothenberg, 2007; Baines et al., 2013). This includes technical knowledge as well as personal skills for interacting with the customer, building the relationship and adapt work routines based on customer needs (Baines et al., 2013). As such, staff activities change from routine tasks where each employee has their specialised area of work to empowered roles where each employee has the discretion and responsibility to achieve an outcome (Daft et al., 2010). Thus, they need to be provided with training and education to develop and maintain the skill set within the organisation.

Changes within the external environment need to be particularly reflected in the structure and processes (Homburg et al., 2000). However, Neu and Brown (2005) found that in addition to these, rewards formed a core factor in determining the difference between success and failure within the context of servitization. In addition, Baines et al. (2013) highlighted the importance of staff skills for providing and delivering service quality. As such, it seems important to define recommendations for each of the factors defined in the star model and depicted in Figure 1.

## Methodology

To investigate our research question (RQ): What are the characteristics of organisation design for manufacturing companies engaging in a servitization strategy?, we adopted a single case study approach. The case study was undertaken with one solution provider in the European renewable energy sector providing support services for their equipment. Case studies are a particularly useful research method in the context of servitization to analyse the researched issue in-depth based on empirical observations (Baines and Lightfoot, 2014). Furthermore, the literature offers extant theory on organisation design, however to date very little empirical evidence exists. This paper offers confirmatory research to further theory building and develop new insights and understanding.

The case company was selected as a polar extreme, being one of the largest manufacturers and service providers within the European renewable energy sector. They offer services of varying degrees of integration with their equipment ranging from preventative maintenance activities with regular inspections to ensuring the availability of the equipment. The unit of analysis is the service provider's organisation, analysing their organisation structure, processes, rewards and people to develop capabilities and follow their business strategy. To analyse the solution provider's performance, we included their customers into our case.

We collected data from multiple sources of evidence including interviews, notes from discussions with senior managers and documents from the organisation to gather a rich picture of the investigated case study (Yin, 2009). In total, we collected and transcribed 13 semi-structured, in-depth interviews both from the solution provider and their customer. The interviewees were from different levels and functions within their respective organisations including service managers and service engineers as depicted in Table 1. The interviews varied in length between 40 and 120 minutes. The interviewees were asked to reflect on the service relationship including questions regarding the motivation to offer and receive support services, issues of organisation design such as strategy and structure and the relationship between the solution provider and their customers. The findings of the interviews were triangulated with secondary data such as service contracts and organisation documentation to mitigate method bias and improve internal and external validity and case study rigour.

*Table 1: Interviewees of service provider and customer*

<b>Interviewees service provider</b>	<b>Interviewees customer</b>
Manager of Customer Service Customer Service Manager 1 Customer Service Manager 2 Customer Service Manager 3 Controlling Administration Manager Regional Manager Site Manager Quality Performance Expert Senior Business Manager	Service Operations Manager Operations Manager Procurement and Project Manager Managing Director

To analyse the transcripts, notes and additional material, we coded the data in thematic categories based on the researchers' understanding of the data. The thematic categories were derived from our theoretical framing described above and further emerged based on our empirical data analysis.

## Results

This section presents the case study results with regard to the external environment, organisation design and performance of the case company.

### *External environment*

Renewable energy has become increasingly important within the European market. Even though the market share of renewable energy is still small, the sector has seen average annual growth rates of about 40% between 2006 and 2012. This growth has also survived the economic crisis of 2008 which suggests the substantial business potentials. However, the crisis has had impacts on the renewable energy sector within Europe, increasing pressures on the manufacturers in the field. Increasing pressures have arisen from a growing number of competitors on the product market. Particularly in the area of smaller pieces of equipment, various competitors have entered the market to offer both equipment as well as services in the field. This meant that profit margins on product sales have been decreasing. Thus, providing services with their equipment is of increasing importance for the survival of the manufacturers in the field.

### *Organisation design*

Based on these external stimuli, our service provider incorporated services into their core business strategy. Since 2010, the revenue arising from services has increased more than 50%, even though the total revenue has decreased. Thus, services are of growing importance for the survival of our service provider.

*“Our motivation for providing services is like any other maturing industry where you supply. Prices and margins go down on the equipment and then you have to extend your business and there is no better way. Chapter 1A is service.”* (Key account manager)

To capture the business potential and follow their strategy, the service provider needs to develop and maintain the necessary capabilities, including structure, processes, rewards and people. In terms of **structure**, the service provider organised themselves in four main departments: product sales, service sales, projects and services. The product sales department is responsible for selling the equipment of different sizes and technology, service sales focus on selling the maintenance and service contracts for the equipment, projects install the equipment and services deliver the activities agreed in the service contracts.

Adopting a servitization strategy meant that **processes** had to be organised accordingly. As such, the organisation structure is supposed to follow the product life cycle, with product sales as the starting point for transferring the equipment to the customer, the projects department installing this equipment, service sales department selling the operation and maintenance services and the services department delivering on these promises. Practically, major issues arise within this theoretical process, showing problems between the product and service sales departments, failure to implement standardisation and the information flow to the service department especially from sales.

In sales, the product sales department regularly assumes the tasks of the service sales department, often leaving the service sales redundant in their tasks. The reasons for this are manifold and can be summarised into two main points. First, the company started following a one-point-of-contact process as communications from the service sales department in the past *“were often overly complicated”* (Quality performance expert),

leading to long and confusing negotiations. Thus, having one department focusing on sales and negotiations streamlined customer communications. Second, this streamlining has led to a reduced number of staff within the service sales department, namely six people in comparison to 30 personnel in product sales. Being “*stretched pretty thinly*” (Key account manager) reduces the possibilities of the service sales department for being involved in the sales process.

In the past, our service provider customised every service agreement to the customer needs. They changed this to standardised service agreements of five levels, ranging from a pay-as-you-go breakdown support to availability contracts, guaranteeing the operability of their equipment for an agreed number of hours. Despite this standardisation, the service provider still deals with large amounts of customisation of their service agreements. High pressures on product sales mean that the product sales department tend to comply with customer wishes in terms of support services to close the deal. “*No contract is standard. Differentiation is done to get the sale*” (Key account manager). Thus, standardised contracts are often not enforced leading to ambiguities within the service provider in terms of delivering the agreed support.

The information flow to the services department especially from the sales departments is insufficient. Whether service agreements are sold by the product sales or by the service sales department, the services department is not involved in the process. “*There is a gap between service sales and service. (...) we are not a part of actually making the contract saying yes we can live up to this, but not to this*” (Controlling administration manager). This gap in addition to the non-standard content of the service contracts causes uncertainties when starting to deliver on the agreements as they do not know the scope of the agreed activities. “*But we need to know what to deliver. That is the main issue. Knowing the promises that have been made*” (Site manager).

In terms of **rewards**, the service provider followed a product-centred approach by implementing key performance indicators (KPIs) to show how the execution of the service affects production.

*“The major KPI for the service personnel is (...) how many percentage of the total production ability has this [piece of equipment] been up and running. If the [weather is not favourable] it won’t count towards the [performance]. The whole service organisation is looking at [performance].” (Controlling Administration Manager)*

The **people** at the service provider have strong technological skills as the customer acknowledges: “*They work smart, they are prepared when they go somewhere and bring the spare parts needed for the job*” (Customer procurement and project manager). Looking at the relational skills, there seems to be a discrepancy between the service provider’s and the customer’s perception. The service provider perceives themselves to perform strongly. “*The relationship is important. To have a good dialogue and a customer that trusts us that is the most important. (...) We are doing a good job and perform up to contract*” (Regional manager). In contrast, the customer gave strong possibilities for improvement, which focused around the single-point-of-contact issue with the service provider.

*“Because everything needs to go through one bottleneck (...) that bottleneck needs to be really skilled not only contractual, but in understanding the question the customer is asking. (...) The communication becomes muddled. Having a single point of contact is not customer oriented.” (Customer service operations manager).*



### *Performance*

Measuring performance in service is difficult; however, one suitable indicator can be customer satisfaction. The interviewed customer seemed satisfied with the technical service quality they received: *“Performance-wise the service business does a good job I’ll give them that. They have good availability. (...) I would give the service a good part of that”* (Customer procurement and project manager). This satisfaction arose from the good technological skills of the service provider, but also from the way they handle crises. *“They have a good crisis handling and are swift in the organisation if there really are problems”* (Customer managing director).

However, there are shortcomings particularly in terms of communication with the customer, as the service provider is aware. *“The thing that is missing is communication. Our customers are not aware of what we are doing and we don’t tell them. Especially, when we do something great”* (Manager customer service). This meant that the customer insourced some service activities. *“We have taken more and more services to us”* (Customer service operations manager). Thus, technical performance to contractually agreed performance indicators seems to not be enough in the context of maintenance services.

This development of the lacking communication and the customer’s insourcing of service activities made the relationship between service provider and customer increasingly difficult. The service provider has recognised that the market was developing *“from a seller’s market to a buyer’s market”* (Manager customer service) but have lacked to act on this recognition *“They are not satisfied with us performing service and error handling ourselves. We feel like they are trying to work against us.”* (Customer service operation manager).

### **Discussion**

This paper showed the organisation design of a servitized manufacturer in the European renewable energy market. We found that multiple issues in organisation design lead to insufficient performance of the studied service provider. In the literature, servitization is often described as an approach to create or increase entrance barriers for competitors (Vandermerwe and Rada, 1988); however, for the presented case study these barriers could not be observed. The customer was increasingly insourcing service activities, making them a competitor to the service provider. Additionally, we found that the service provider aligned their strategy with external incentives as suggested by the literature (Neu and Brown, 2005; Kates and Galbraith, 2007); however, the strategy was not translated into capabilities. For example, the structure was not aligned with processes, particularly comparing tasks and practices of product sales and service sales. Another example is the product-focus of the rewards, leaving them unaligned with the servitization strategy.

The limitations of the presented research are connected to the single-case approach. Presenting data on one service provider in a specific market environment limits the generalizability of the findings. However, the research adds to the literature in offering strong evidence that can be used in combination with other case evidence presented in the literature such as Galbraith (2002). Thus, this research offers strong contributions to the field and practice.

## Conclusions

This paper aimed at answering the research question (RQ): What are the characteristics of organisation design for manufacturing companies engaging in a servitization strategy? Presenting single-case evidence from a service provider in the European renewable energy sector, we showed how a lack of aligning aspects of organisation design with each other and a lack of translating strategy into effective actions can lead to being an insufficient service provision. Specifically, the following key variables were identified. First, processes seem to be a key part of a successful organisation design in servitization highlighting the need to information sharing within the organisation as well as with the customer. The investigated service provider showed substantial shortcomings in this area as tasks were taken over between business departments and information was not shared between these departments. Second, an insufficient translation of a servitization strategy into service-centred activities can lead to substantial problems for service provision. Particularly when establishing rewards with product-focused performance measurement means that the company focus is not on the customer or the service but on unsuitable indicators. Third, insufficient alignment of the parts of organisation design - capabilities, structure, processes, rewards and people - leads to inconsistencies within the service business that translate to dissatisfied customers.

Future research arises from the limitations of the presented research. Further research, particularly further case studies, is needed to confirm the presented findings in different industry contexts. This will aim to validate the key variables for successful organisation design in servitized manufacturers. In addition, further research needs to investigate the issue of rewards within servitized manufacturing companies, i.e. how to change from a product-focused performance measurement to a service –focused one. Given that success in service activities are difficult to measure, future research needs to give suggestions for practice on how to design rewards in service provision.

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